

No.

8200116'



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF **LAW** IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE **PLANT VARIETY PROTECTION OFFICE**, IN THE **APPLICANT(S)** INDICATED IN THE SAID COPY, AND **WHEREAS**, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY **PROTECTION** UNDER THE **LAW**.

NOW, TAHEREFORE, THIS CERTIFICATE OF PLANT **VARIETY PROTECTION** IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, **HEIRS OR ASSIGNS** OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE **PAYMENT** OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF **VIALBE BASIC SEED** OF THE VARIETY IN A **PUBLIC** REPOSITORY AS PROVIDED BY **LAW**, THE **RIGHT TO EXCLUDE** OTHERS FROM SELLING THE VARIETY, OR **OFFERING** IT FOR SALE, OR **REPRODUCING** IT, **IMPORTING** IT, OR **EXPORTING** IT, OR **USING** IT IN PRODUCING A **HYBRID** OR **VIFFERENT** **VARIETY** THEREFROM, TO THE EXTENT PROVIDED BY THE **PLANT VARIETY PROTECTION ACT** 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

' 5482'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 30th day of June in the year of our Lord one thousand nine hundred and eighty-three.

Attest:

Kenneth H. Co

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R. Block
Secretary of Agriculture

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

No certificate for plant variety Protection may be issued unless a completed application form has been received (5 U.S.C. 553).

INSTRUCTIONS: See Reverse.

1a. TEMPORARY DESIGNATION OF VARIETY 5482		1b. VARIETY NAME 5482		FOR OFFICIAL USE ONLY PV NUMBER 8200116	
2. KIND NAME Sovbean		3. GENUS AND SPECIES NAME Glvaine max		FILING DATE 5/11/82	TIME 10:30 A.M. PM
4. FAMILY NAME (BOTANICAL) Leguminosae		5. DATE OF DETERMINATION October, 1976 January, 1979 (increase)		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 5/11/82 5/23/83
6. NAME OF APPLICANT(S) Pioneer Hi-Bred International, Inc.		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 1206 Mulberry Street- Des Moines, Iowa 50308		8. TELEPHONE AREA CODE AND NUMBER (319)277-1733	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION I o w a		11. DATE OF INCORPORATION 1926	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENT ALL PAPERS: Clark W Jennings Box 854 Cedar falls, Iowa 50613					
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENT ALL PAPERS: Dale L. Porter 1206 Mulberry Street Des Moines, Iowa 50308					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☐ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☐ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Requestform from Plant Variety Protection Office.)
- ☐ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) a Y E S ☒ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☒ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? name of countries and dates. c I YES ☒ NO (If "Yes," give

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

April 27, 1982
(DATE)

Clark Jennings
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

Attachment: 5482 Soybean (April, 1982)

Exhibit A: Variety 5482 evolved from a cross of Dare X Forrest. It is an F₅-derived variety which was advanced to the F₅ generation by modified single-seed descent. The F₆ progeny row of 5482 was grown in Mississippi during the summer of 1976. Subsequently, 5482 has undergone five years of extensive testing and purification and has been observed by the breeder to be uniform and stable for all plant traits from generation to generation, with no evidence of variants.

1.0 acre of 5482 (pedigree seed) was grown in 1979. 50 acres of parent seedstock were grown in 1981.

Exhibit B: Variety 5482 is most similar to the variety Forrest. However, Forrest is resistant to soybean cyst nematode (race 3), whereas 5482 is susceptible.

U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL MARKETING SERVICE
 LIVESTOCK, MEAT, GRAIN & SEED DIVISION
 PLANT VARIETY PROTECTION OFFICE
 BE L TSVILLE, MARY LAND 20705

EXHIBIT C
 (Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
 SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) Pioneer Hi-Bred International, Inc.	TEMPORARY DESIGNATION	VARIETY NAME 5482
AODR ESS (Street and No., or R. F. D. No., City, State, and Zip Code) 1206 Milberry Street Des Moines, Iowa 50308		FOR OFFICIAL USE ONLY PVPO NUMBER 8200116

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,).

1. SEED SHAPE:

c 1



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)

3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)

4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify) _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

☒

2 R/S 6/14/82

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17')

4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

5. HILUM COLOR: (Mature Seed)

1 = Buff

2 = Yellow

3 = Brown

4 = Gray

5 = Imperfect Black

6 = Black

7 = Other (Specify) _____

6. COTYLEDON COLOR: (Mature Seed)

cl 1

1 = Yellow

2 = Green

7. SEED PROTEIN PEROXIDASE ACTIVITY:

c 1

1 = Low

2 = High

8. SEED PROTEIN ELECTROPHORETIC BAND:

c 1

1 = Type A (SP1^a)2 = Type B (SP1^b)

9. HYPOCOTYL COLOR:

a 2

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify) _____

INSTRUCTIONS

GENERAL : Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) **the** details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 13b Give a summary statement of the variety's novelty. **Clearly** state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety **has either** been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and **section** 180.7 of the Regulations and Rules of Practice.



11. LEAFLET SIZE:

c 2 1 = Small ('Amsoy 71'; 'A5312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')
 3 = Large ('Crawford'; 'Tracy')

12. LEAF COLOR:

2 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')
 3 = Dark Green ('Gnome'; 'Tracy')

13. FLOWER COLOR:

1 1 = White 2 = Purple 3 = White with purple throat

14. POD COLOR:

1 1 = Tan 2 = Brown 3 = Black

15. PLANT PUBESCENCE COLOR:

c 2 1 = Gray 2 = Brown (Tawny)

16. PLANT TYPES:

2 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')
 3 = Bushy ('Gnome'; 'Govan')

17. PLANT HABIT:

a 1 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Will')
 3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

18. MATURITY GROUP:

0 8 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V
 9 = VI 10 = VII 11 = VIII 12 = IX 13 = x

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

a 2 Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)

c 2 1 Bacterial Blight (*Pseudomonas glycinea*)

2 Wildfire (*Pseudomonas tabaci*)

FUNGAL DISEASES:

0 Brown Spot (*Septoria glycines*)

Frogeye Leaf Spot (*Cercospora soja*)

0 Race 1 0 Race 2 c 0 1 Race 3 0 Race 4 0 Race 5 c 0 1 Other (Specify)

0 Target Spot (*Corynespora cassicola*)

0 Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)

c 0 1 Powdery Mildew (*Microsphaera diffusa*)

0 Brown Stem Rot (*Cephalosporium gregatum*)

0 Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

<input type="text" value="0"/>	Pod and Stem Blight (<i>Diaporthe phaseolorum</i> var. <i>sojae</i>)												
<input type="text" value="0"/>	Purple Seed Stain (<i>Cercospora kikuchii</i>)												
<input type="text" value="0"/>	Rhizoctonia Root Rot (<i>Rhizoctonia solani</i>)												
<input type="text" value="1"/>	Phytophthora Rot (<i>Phytophthora megasperma</i> var. <i>sojae</i>)												
<input type="text" value="1"/>	Race 1	<input type="text" value="1"/>	Race 2	<input type="text" value="0"/>	Race 3	<input type="text" value="0"/>	Race 4	<input type="text" value="0"/>	Race 5	<input type="text" value="0"/>	Race 6	<input type="text" value="0"/>	Race 7
<input type="text" value="0"/>	Race 8	<input type="text" value="0"/>	Race 9	<input type="text" value="0"/>	Other (Specify) _____								

VIRAL DISEASES:

<input type="text" value="0"/>	Bud Blight (Tobacco Ringspot Virus)
<input type="text" value="0"/>	Yellow Mosaic (Bean Yellow Mosaic Virus)
<input type="text" value="0"/>	Cowpea Mosaic (Cowpea Chlorotic Virus)
<input type="text" value="0"/>	Pod Mottle (Bean Pod Mottle Virus)
<input type="text" value="0"/>	Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

<input type="text" value="1"/>	Soybean Cyst Nematode (<i>Heterodera glycines</i>)												
<input type="text" value="1"/>	Race 1	<input type="text" value="0"/>	Race 2	<input type="text" value="1"/>	Race 3	<input type="text" value="1"/>	Race 4	<input type="text" value="0"/>	Other (Specify) _____				
<input type="text" value="0"/>	Lance Nematode (<i>Hoplolaimus Colonus</i>)												
<input type="text" value="0"/>	Southern Root Knot Nematode (<i>Meloidogyne incognita</i>)												
<input type="text" value="0"/>	Northern Root Knot Nematode (<i>Meloidogyne Hapla</i>)												
<input type="text" value="0"/>	Peanut Root Knot Nematode (<i>Meloidogyne arenaria</i>)												
<input type="text" value="0"/>	Reniform Nematode (<i>Rotylenchulus reniformis</i>)												
<input type="text" value="0"/>	OTHER DISEASE NOT ON FORM (Specify): _____												

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

<input type="text" value="0"/>	Iron Chlorosis on Calcareous Soil
<input type="text" value="0"/>	Other (Specify) _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

<input type="text" value="0"/>	Mexican Bean Beetle (<i>Epilachna varivestis</i>)
<input type="text" value="0"/>	Potato Leaf Hopper (<i>Empoasca fabae</i>)
<input type="text" value="0"/>	Other (Specify) _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	Essex	Seed Coat Luster	Forrest
Leaf Shape	Forrest	Seed Size	Forrest
Leaf Color	Forrest	Seed Shape	Forrest
Leaf Size	Forrest	Seedling Pigmentation	Forrest

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
Submitted 5482	108	1.6	76						
Name of Similar Variety Forrest	110	2.2	84						

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBT1-A₂ in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.